

**Discussion of “Unemployment fluctuations with  
staggered Nash wage bargaining, by Mark  
Gertler and Antonella Trigari**

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Washington, December 1 2006

## 1. Part of an important research effort

The merger of two central models: NK and DMP. Did not look likely 15 years ago.

Three steps:

1. Merz: RBC and DMP. Hall-Shimer: Real wage rigidity.
2. merger : This paper
3. plus nominal rigidities: The other two papers at this session.

Step 2 very useful. Raises many questions about labor market, and how to formalize it.

## 2. In the small: Very well done

Extremely careful. Goes through the complexities, if only to assess they do not matter in the end.

- One cost of constant returns to labor: Employment at each firm has a unit root. So no steady state distribution. (Be more explicit)

Repair? Give up constant returns to labor. Costly (bargaining: Stole-Zwiebel), but worth exploring.

- Give simple analytical version, using relevant approximations. Get rid of capital. Then, can get system in  $(n, w; a)$ .

More useful than matching of sds and  $\rho$ s. (We know that current productivity shocks are, at most, a small part of the story)

Insight: Relation of  $x$  rather than  $n$  to EPDV of profits.

Take the simplified problem of a given firm (ignore the firm index)

$$\max V = E \sum R^t \pi_t$$

subject to:

$$\pi_t = (a_t - w_t - \frac{k}{2}x_t^2)n_t$$

and

$$n_{t+1} = \rho n_t + x_t n_t$$

FOC:

$$kx_t = R[a_{t+1} - w_{t+1} + \frac{k}{2}x_{t+1}^2 + \rho k E x_{t+1}]$$

In steady state, with no firm specific shocks:  $x_t = (1 - \rho)$ . Invariant size distribution.

In steady state, with firm-specific shocks:  $x_t = (1 - \rho) + \epsilon_t$ , so:

$$n_{t+1} = (1 + \epsilon_t)n_t$$

### 3. In the large: Wage staggering

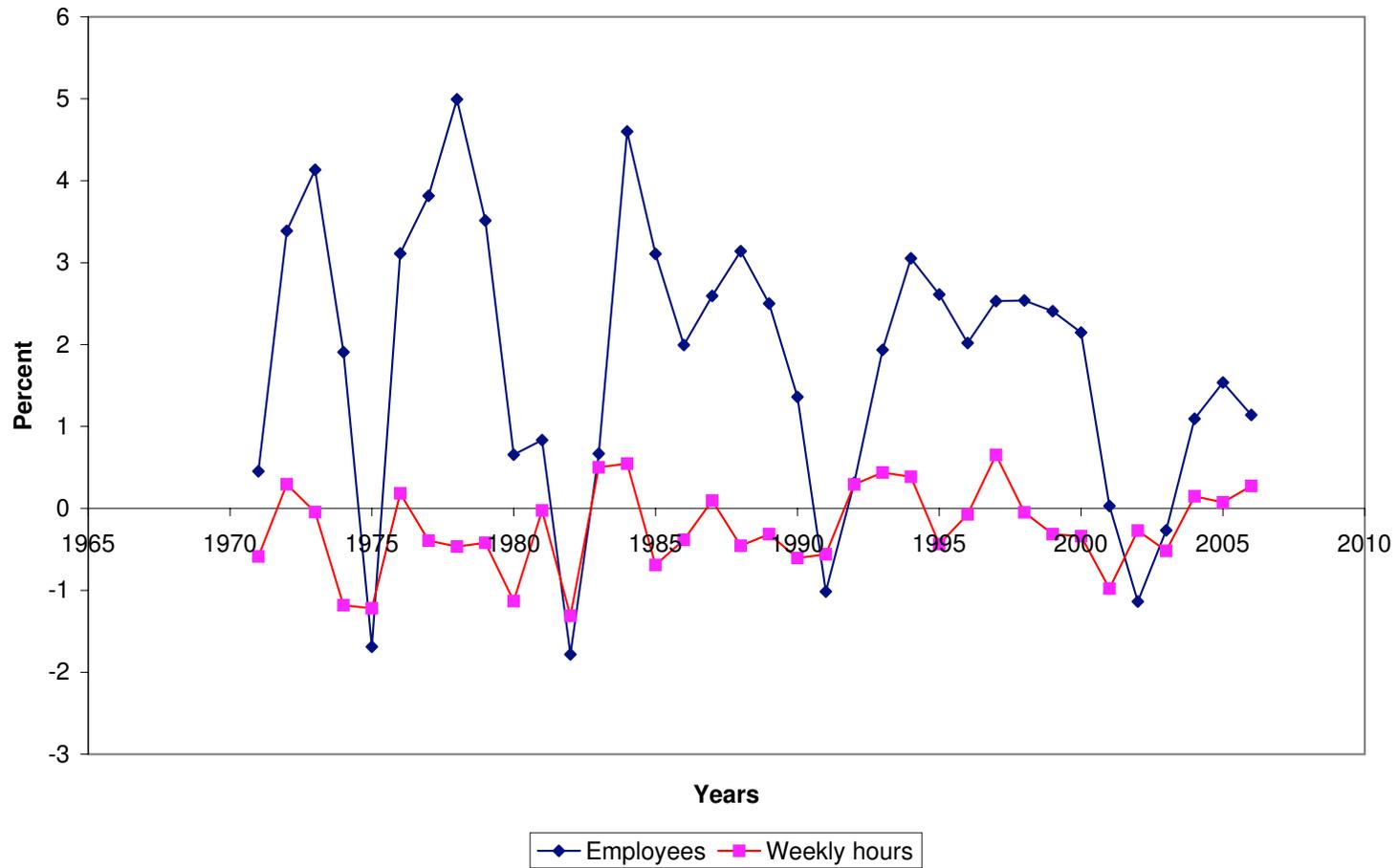
Important conceptual step. More than an ad-hoc Calvo extension of Hall aggregate rigidity to a Merz RBC model.

- Gets at wage determination within the firm. One firm: many jobs, many workers. Efficiency wages/fairness back in picture.
- Same workers want same wages.
- Costly to readjust the whole wage structure.
- Experience as chair. A wage structure. Hires within the wage structure (plus epsilon). Infrequent general readjustments. up). More solid evidence. Devereux-Hart.
- Calvo formalization does well as a first pass.

## 4. Other directions before nominal rigidities?

- The hours margin. Efficient/inefficient? Perhaps not essential for macro. Figure.
- The separation margin. Efficient/inefficient? Given above, recontracting may be difficult. Separations vary in the cycle
- Determinants and role of  $b$ . Institutional details must matter. How does productivity get into wages? (May have to give up on full insurance)

Rates of change. Bodies/Hours Private sector



## 4. From there to nominal rigidities?

How best to introduce nominal wage rigidities? Clearly start from the formalization of real wage rigidity in G-T. (B-G is much too rough in that respect)

Then:

- Two Calvo coefficients? Real wage adjustment. Nominal wage adjustment.
- Relation to wages set in nominal terms with partial backward looking indexation.